



Report of Test

LLIA000977-005A

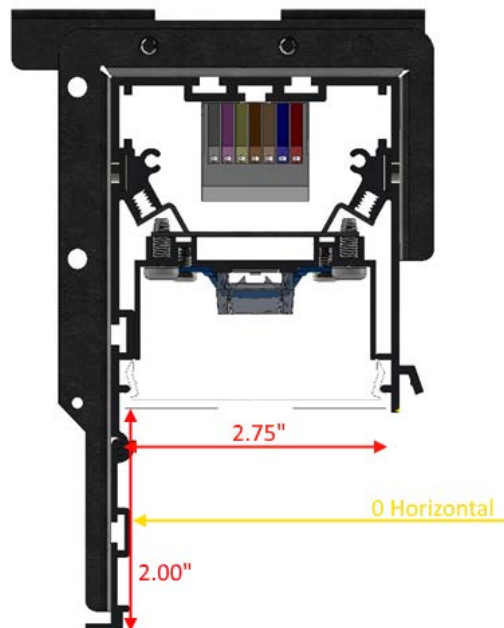
Catalog Number: PSWW3-HO-K40-80-4-XXX-XX-FL-UNV-XXX

Recessed mounted, extruded aluminum housing, frosted plastic enclosure.

One PAL-Lighting LED board with 88 LEDs and clear prismatic plastic lenses below LEDs.

One Osram Optotronic OT30W/PRG1050C/UNV/DIM/L LED driver

120.0Vac, 60.00Hz, 0.2322A, 27.76W, 0.997PF, 6.2%THD(i)



Performance Summary

Total Light Output	2554 lm
Luminaire Power	27.8 W
Luminous Efficacy	91.9 lm/W

PREPARED FOR : Precision Architectural Lighting, 4830 Timber Creek Drive, Houston, TX 77017



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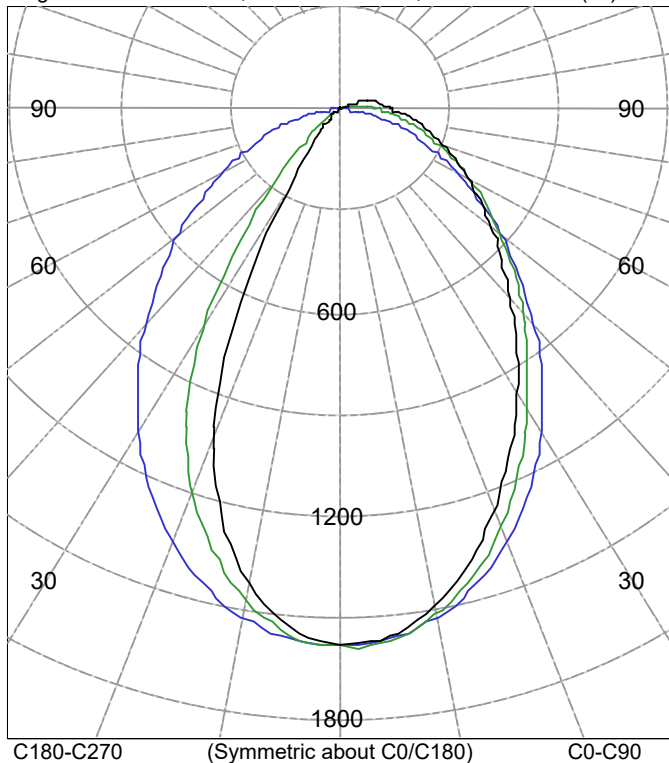
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Legend: C0/C180-Black, C45/C225-Green, C90/C270-Blue (cd)



INTENSITY SUMMARY (cd)

Gamma	C-Plane					Flux (lm)
	C0	C22.5	C45	C67.5	C90	
0.0	1583	1583	1583	1583	1583	
5.0	1560	1568	1574	1560	1569	147
10.0	1490	1500	1516	1513	1524	
15.0	1380	1393	1422	1436	1449	386
20.0	1244	1259	1302	1331	1349	
25.0	1103	1117	1165	1209	1229	484
30.0	970	981	1026	1077	1098	
35.0	843	855	896	943	960	444
40.0	725	736	780	812	822	
45.0	625	631	672	691	691	362
50.0	540	543	572	583	571	
55.0	467	467	484	489	462	271
60.0	404	401	407	408	365	
65.0	348	343	340	332	280	190
70.0	300	293	280	261	205	
75.0	256	248	227	199	140	125
80.0	214	206	181	143	84	
85.0	175	166	139	95	34	71
90.0	143	134	101	53	0	

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	% Lamp	% Luminaire
0-30	1016	N / A	39.8
0-40	1460	N / A	57.2
0-60	2093	N / A	81.9
0-90	2479	N / A	97.1
40-90	1019	N / A	39.9
60-90	386	N / A	15.1
90-180	75	N / A	2.9
0-180	2554	N / A	100.0

Total Light Output = 2,554 lm

Signed:

Authorized Signatory

Date of test

27-Apr-2018

Date of report

2-May-2018



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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
0.0	1583	1583	1583	1583	1583
2.5	1575	1584	1587	1570	1580
5.0	1560	1568	1574	1560	1569
7.5	1531	1539	1550	1541	1550
10.0	1490	1500	1516	1513	1524
12.5	1439	1451	1473	1478	1490
15.0	1380	1393	1422	1436	1449
17.5	1313	1328	1365	1386	1401
20.0	1244	1259	1302	1331	1349
22.5	1173	1188	1235	1271	1291
25.0	1103	1117	1165	1209	1229
27.5	1035	1048	1095	1143	1165
30.0	970	981	1026	1077	1098
32.5	906	917	960	1010	1029
35.0	843	855	896	943	960
37.5	782	794	837	877	891
40.0	725	736	780	812	822
42.5	673	681	725	750	755
45.0	625	631	672	691	691
47.5	581	585	620	635	629
50.0	540	543	572	583	571
52.5	502	504	526	534	514
55.0	467	467	484	489	462
57.5	435	433	444	448	412
60.0	404	401	407	408	365
62.5	375	371	373	369	321
65.0	348	343	340	332	280
67.5	323	317	309	295	241
70.0	300	293	280	261	205
72.5	278	270	252	229	171
75.0	256	248	227	199	140
77.5	235	226	203	170	111
80.0	214	206	181	143	84
82.5	195	186	159	118	58
85.0	175	166	139	95	34
87.5	154	145	116	74	10
90.0	143	134	101	53	0



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Intensity data (cd)

Gamma	C-Plane				
	C0	C22.5	C45	C67.5	C90
90.0	143	134	101	53	0
92.5	136	126	94	43	0
95.0	126	115	82	38	0
97.5	113	105	78	27	0
100.0	109	101	70	19	0
102.5	102	93	59	14	0
105.0	93	82	45	4	0
107.5	81	67	36	3	0
110.0	64	54	29	0	0
112.5	53	44	24	0	0
115.0	43	36	13	0	0
117.5	37	32	0	0	0
120.0	31	23	0	0	0
122.5	21	5	0	0	0
125.0	0	0	0	0	0
127.5	0	0	0	0	0
130.0	0	0	0	0	0
132.5	0	0	0	0	0
135.0	0	0	0	0	0
137.5	0	0	0	0	0
140.0	0	0	0	0	0
142.5	0	0	0	0	0
145.0	0	0	0	0	0
147.5	0	0	0	0	0
150.0	0	0	0	0	0
152.5	0	0	0	0	0
155.0	0	0	0	0	0
157.5	0	0	0	0	0
160.0	0	0	0	0	0
162.5	0	0	0	0	0
165.0	0	0	0	0	0
167.5	0	0	0	0	0
170.0	0	0	0	0	0
172.5	0	0	0	0	0
175.0	0	0	0	0	0
177.5	0	0	0	0	0
180.0	0	0	0	0	0



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Intensity data (cd)

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
0.0	1583	1583	1583	1583	1583
2.5	1580	1567	1581	1575	1564
5.0	1569	1552	1556	1543	1531
7.5	1550	1527	1520	1498	1483
10.0	1524	1493	1473	1437	1419
12.5	1490	1451	1414	1364	1340
15.0	1449	1402	1346	1277	1245
17.5	1401	1345	1268	1176	1134
20.0	1349	1281	1183	1061	1002
22.5	1291	1213	1089	925	835
25.0	1229	1141	988	754	632
27.5	1165	1067	877	567	448
30.0	1098	990	752	407	313
32.5	1029	913	611	289	220
35.0	960	835	471	205	153
37.5	891	758	354	144	108
40.0	822	681	260	103	80
42.5	755	606	188	77	60
45.0	691	530	134	57	43
47.5	629	453	95	41	28
50.0	571	375	70	27	15
52.5	514	299	51	14	0
55.0	462	230	36	0	0
57.5	412	169	23	0	0
60.0	365	119	10	0	0
62.5	321	80	0	0	0
65.0	280	53	0	0	0
67.5	241	34	0	0	0
70.0	205	20	0	0	0
72.5	171	8	0	0	0
75.0	140	0	0	0	0
77.5	111	0	0	0	0
80.0	84	0	0	0	0
82.5	58	0	0	0	0
85.0	34	0	0	0	0
87.5	10	0	0	0	0
90.0	0	0	0	0	0



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Intensity data (cd)

Gamma	C-Plane				
	C90	C112.5	C135	C157.5	C180
90.0	0	0	0	0	0
92.5	0	0	0	0	0
95.0	0	0	0	0	0
97.5	0	0	0	0	0
100.0	0	0	0	0	0
102.5	0	0	0	0	0
105.0	0	0	0	0	0
107.5	0	0	0	0	0
110.0	0	0	0	0	0
112.5	0	0	0	0	0
115.0	0	0	0	0	0
117.5	0	0	0	0	0
120.0	0	0	0	0	0
122.5	0	0	0	0	0
125.0	0	0	0	0	0
127.5	0	0	0	0	0
130.0	0	0	0	0	0
132.5	0	0	0	0	0
135.0	0	0	0	0	0
137.5	0	0	0	0	0
140.0	0	0	0	0	0
142.5	0	0	0	0	0
145.0	0	0	0	0	0
147.5	0	0	0	0	0
150.0	0	0	0	0	0
152.5	0	0	0	0	0
155.0	0	0	0	0	0
157.5	0	0	0	0	0
160.0	0	0	0	0	0
162.5	0	0	0	0	0
165.0	0	0	0	0	0
167.5	0	0	0	0	0
170.0	0	0	0	0	0
172.5	0	0	0	0	0
175.0	0	0	0	0	0
177.5	0	0	0	0	0
180.0	0	0	0	0	0



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Coefficients Of Utilization - Zonal Cavity Method

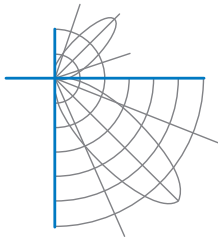
Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	118	118	118	118	115	115	115	115	109	109	109	104	104	104	99	99	99	97
1	109	105	101	97	106	102	99	95	97	94	92	93	91	88	89	87	85	83
2	100	93	87	82	98	91	85	81	87	82	78	83	80	76	80	77	74	72
3	93	83	76	70	90	82	75	70	78	73	68	75	71	67	73	69	65	63
4	86	75	68	62	84	74	67	61	71	65	60	69	63	59	66	62	58	56
5	80	69	61	55	78	67	60	54	65	58	53	63	57	53	61	56	52	50
6	75	63	55	49	73	62	54	49	60	53	48	58	52	47	56	51	47	45
7	70	58	50	44	68	57	49	44	55	48	44	53	47	43	52	47	43	41
8	66	53	46	40	64	53	45	40	51	44	40	50	44	39	48	43	39	37
9	62	50	42	37	60	49	42	37	48	41	37	46	40	36	45	40	36	34
10	58	46	39	34	57	46	39	34	44	38	34	43	38	33	42	37	33	32

For absolute test reports, CUs are expressed as a percentage of total lumen output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

Circle of Light Plot

Height(ft)	Illuminance at Nadir (fc)	Beam Width (across 50% Nadir Illum)	
		0-180	90-270
6.0	44.0	5.15	6.39
8.0	24.7	6.86	8.52
10.0	15.8	8.58	10.65
12.0	11.0	10.30	12.78
14.0	8.1	12.01	14.91
16.0	6.2	13.73	17.04



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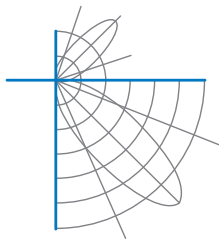
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Test Distance 9.5 m
Test Temperature 25.0 °C

Notes

The laboratory has not participated in the selection of samples to be tested. All testing is performed on the understanding that the significance of the report is limited to the extent that the test sample is representative of production units.

Tested in accordance with the applicable sections of publications: IES LM-79-08 (Sec. 12), IES LM-16-93, IES LM-58-13, CIE 13.3:1995, CIE 15:2004, ANSI C78.377:2015, ANSI C82.77-10:2014.

The luminous intensity values, and other derived quantities, contained in this report are based on the absolute data, as measured.

Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

This report is free of erasures and corrections.

Photometric intensity values are reported using the CIE Gamma coordinate system as defined in CIE publication number 121.

This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with * are not covered.

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the Federal Government.



Report of Test

LLIA000977-005B

Integrating Sphere Report

Catalog Number: PSWW3-HO-K40-80-4-XXX-XX-FL-UNV-XXX

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One Osram Optotronic OT30W/PRG1050C/UNV/DIM/L LED driver



Performance Summary

Voltage	120.0 Vac
Current	0.2326 A
Power	27.83 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	6.2 %

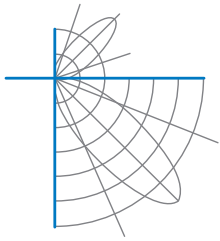
Total Luminous Flux	2621.0 lm
Efficacy	94.2 lm/W
Chromaticity (x,y)	(0.3778, 0.3746)
(u',v')	(0.2243, 0.5002)
Duv	-0.0002
CCT	4057 K
CRI (Ra)	85
R9	22
TM-30: Rf	83
TM-30: Rg	95

Prepared For:

Precision Architectural Lighting
4830 Timber Creek Drive
Houston, TX 77017, USA

Test date: 04/26/2018

Report date: 05/02/2018



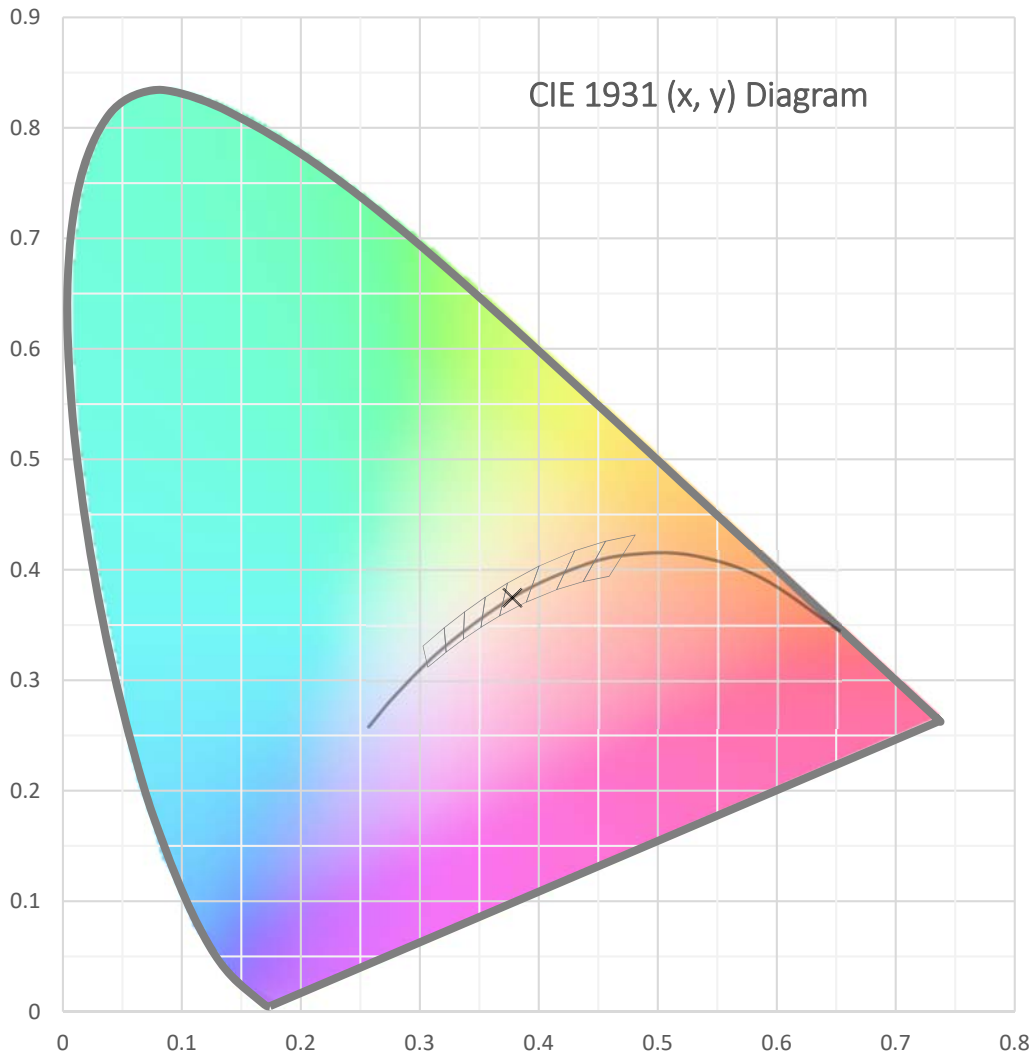
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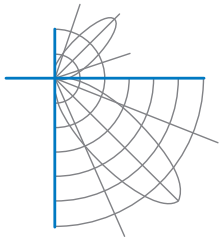
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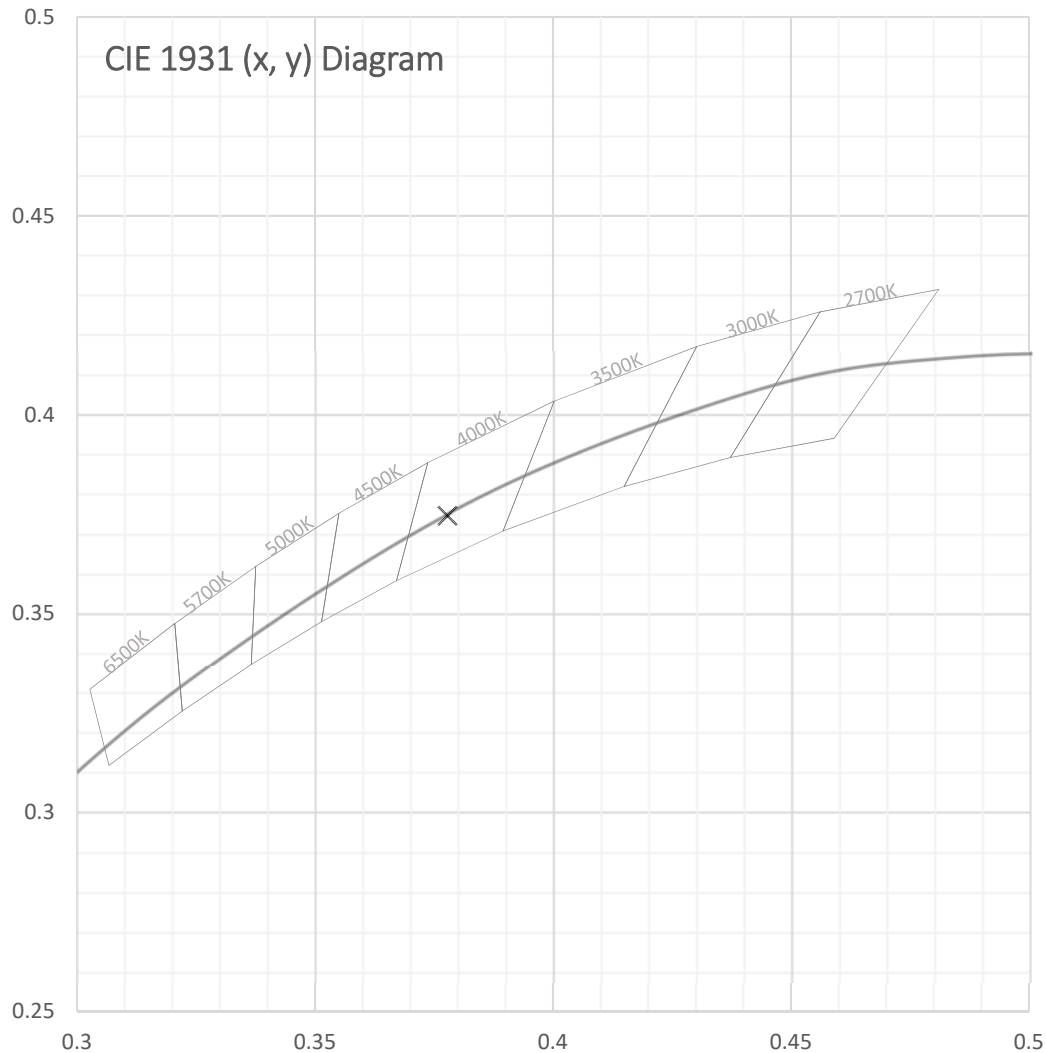
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Spectral Data

Total Radiant Flux	8.270 W
Total Luminous Flux	2621.0 Lm
Chromaticity CIE 1931 (x, y)	(0.3778, 0.3746)
Chromaticity CIE 1976 (u', v')	(0.2243, 0.5002)
Correlated Color Temperature (CCT)	4057 K
Color Rendering Index (Ra)	85
R1	84
R2	91
R3	95
R4	84
R5	84
R6	87
R7	88
R8	69
R9	22
R10	79
R11	82
R12	63
R13	86
R14	98
TM-30: Rf	83
TM-30: Rg	95
Distance from Planckian Locus (Duv)	-0.0002
Scotopic/Photopic Ratio *	1.735

Electrical Data

Voltage	120.0 Vac
Current	0.2326 A
Power	27.83 W
Frequency	59.97 Hz
Power Factor	0.997
Current THD	6.2 %



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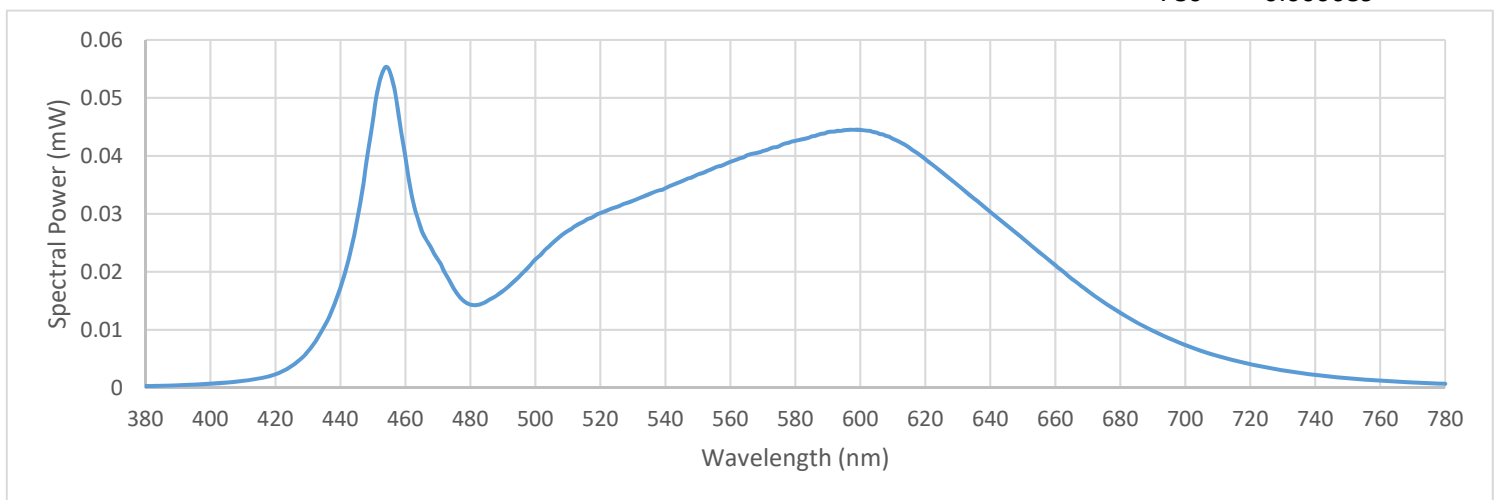
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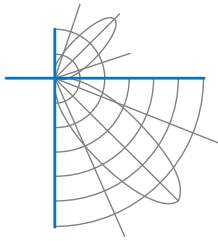
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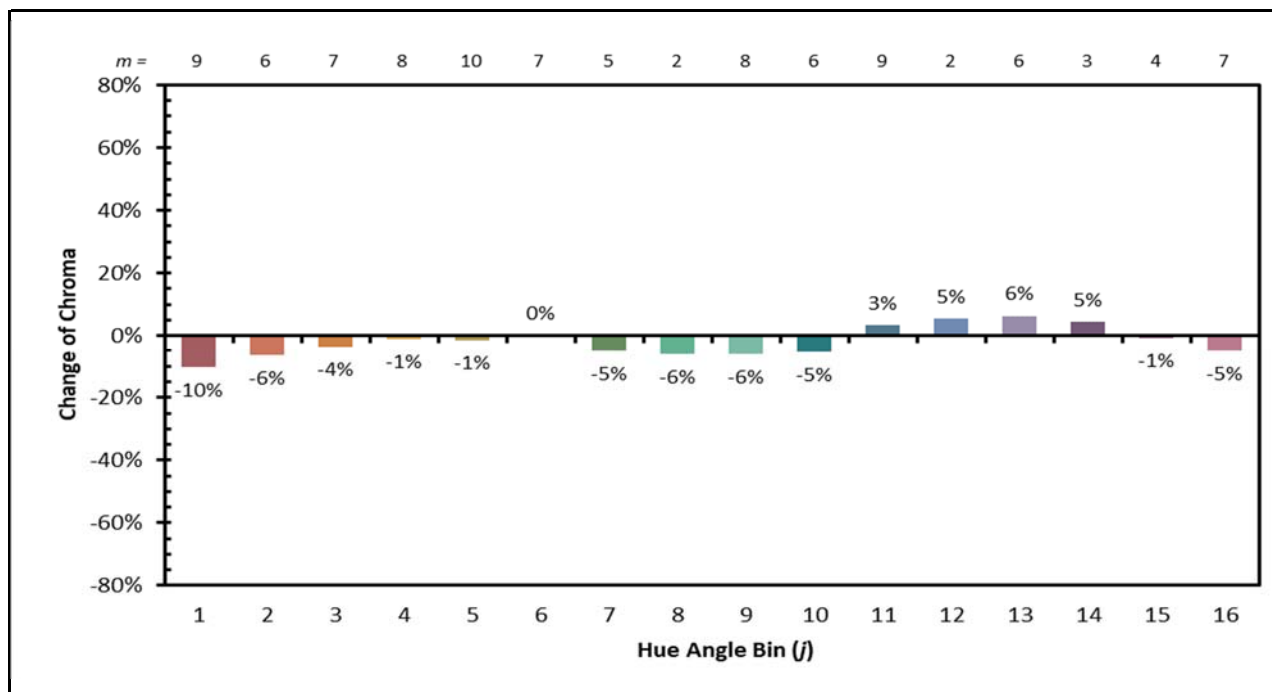
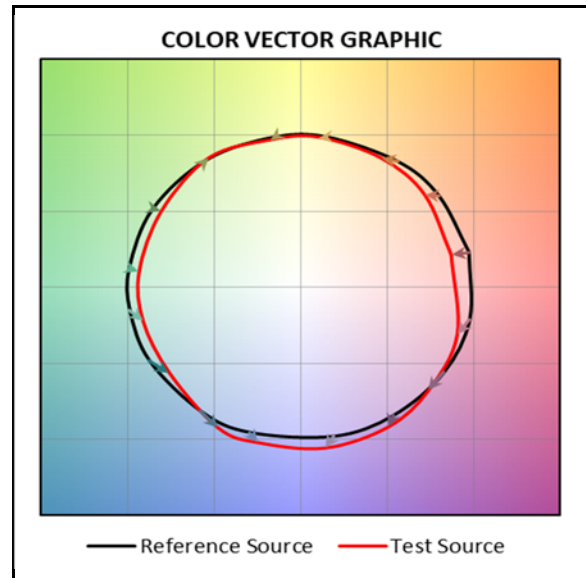
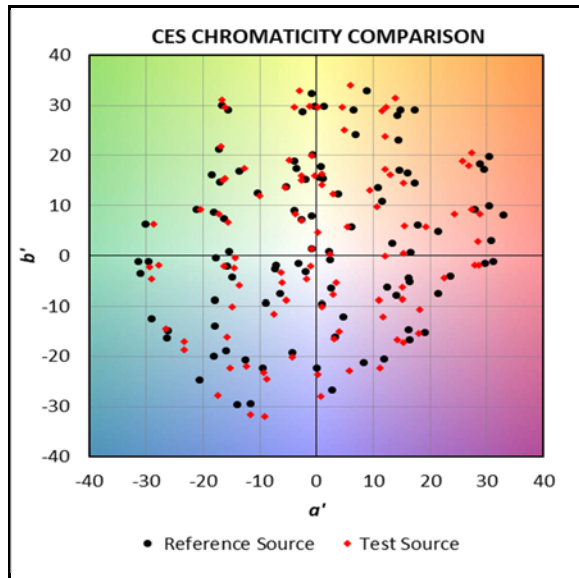
Summary Spectral Power Distribution (wavelength - nm, spectral power - mW)

380	0.000306	480	0.014343	580	0.042578	680	0.012915
385	0.000338	485	0.014889	585	0.043347	685	0.011317
390	0.000419	490	0.016690	590	0.044092	690	0.009833
395	0.000539	495	0.019172	595	0.044441	695	0.008521
400	0.000707	500	0.022157	600	0.044473	700	0.007381
405	0.000918	505	0.024816	605	0.044017	705	0.006348
410	0.001179	510	0.027072	610	0.042937	710	0.005461
415	0.001595	515	0.028705	615	0.041476	715	0.004733
420	0.002344	520	0.030140	620	0.039428	720	0.004074
425	0.003715	525	0.031155	625	0.037214	725	0.003503
430	0.006311	530	0.032271	630	0.034943	730	0.003020
435	0.010592	535	0.033378	635	0.032629	735	0.002580
440	0.017200	540	0.034429	640	0.030339	740	0.002216
445	0.028582	545	0.035610	645	0.028087	745	0.001902
450	0.046095	550	0.036802	650	0.025738	750	0.001647
455	0.054829	555	0.037903	655	0.023415	755	0.001419
460	0.039790	560	0.038959	660	0.021165	760	0.001236
465	0.027062	565	0.040046	665	0.018844	765	0.001066
470	0.022105	570	0.040836	670	0.016706	770	0.000917
475	0.016996	575	0.041666	675	0.014749	775	0.000793
						780	0.000689





IES TM-30 Summary





Test Report Number: LLIA000977-005B

Catalog Number: PSWW3-HO-K40-80-4-XXX-XX-FL-UNV-XXX

Recessed mounted, extruded aluminum housing, frosted plastic enclosure.

One PAL-Lighting LED board with 88 LEDs and clear prismatic plastic lenses below LEDs.

One Osram Optotronic OT30W/PRG1050C/UNV/DIM/L LED driver

Test Equipment Configuration: LightLab International Allentown 2m Integrating Sphere
Measurements acquired using a Labsphere CDS 2600 spectroradiometer
Testing was performed using 4 π geometry

Test Temperature: 24.5 °C

Test Procedure: Tested in accordance with the applicable sections of:
LM-79-08, LM-78-07, LM-58-13, ANSI_ANSLG C78.377-2015,
ANSI C82-77-10:2014, TM-30-15

Significance: The laboratory has not participated in the selection of samples to be tested.
All testing is performed on the understanding that the significance of the report
is limited to the extent that the test sample is representative of production units.

Notes: The measurements and other derived quantities contained in this report
are based on the absolute data as measured.

Prorating the performance of the sample for the use of other component
combinations (such as lamp / LED / Ballast / driver), or for use in different
environmental conditions than that tested, may produce erroneous results.

This report is free of erasures and corrections

This report may contain data that are not covered by the NVLAP accreditation.
Quantities marked with * are not covered.